NATIONAL TRANSPORTATION SAFETY BOARD

SUBJECT OR DOCKET NO.:	DCA00MM030 Fire on Board M/V Columbia
INTERVIEW OF:	Alan F. Lee Chief Engineer of M/V Columbia
DATE:	Friday, June 9, 2000
Location:	Juneau, Alaska Aboard the M/V Columbia,

P R O C E E D I N G

EXAMINER Mike Jones: Continuing interviews on Friday, June the 9th. We're with Mr. Alan F. Lee.

MR. LEE: Correct.

EXAMINER Jones: He's the Chief Engineer on board the Columbia. You're aware that we're taping ~~us~~this?

MR. LEE: Yes, I am.

EXAMINER Jones: It's okay that we tape it?

MR. LEE: Yes, it is.

~~EXAMINER:~~EXAMINER JONES: Can you give us your date of birth?

MR. LEE: 2/27/51.

~~EXAMINER:~~EXAMINER JONES: And, sir, what licenses do you hold?

MR. LEE: ~~I hold T~~the Chief Engineer Motor, any horse-power and a Third Assistant Engineer Steam, any horse-power.

~~EXAMINER:~~EXAMINER JONES: ~~Okay, c~~Can you tell me when your last medical was or your last physical?

MR. LEE: Last year because I just renewed my Chief Engineer's license and I had a complete physical.

~~EXAMINER:~~EXAMINER JONES: Okay, was the physical okay, normal?

MR. LEE: Everything was fine.

~~EXAMINER:~~EXAMINER JONES: Were you vision tested?

MR. LEE: I was vision tested, hearing tested and an EKG, went through the whole test.

~~EXAMINER:~~EXAMINER JONES: Okay, and all of that normal?

MR. LEE: All of it came out normal.

~~EXAMINER:~~EXAMINER JONES: Okay, are you taking any medications?

MR. LEE: None.

~~EXAMINER:~~EXAMINER JONES: Are you taking any cold or over-the-counter medications?

MR. LEE: None.

~~EXAMINER:~~EXAMINER JONES: What I'd like you do is relate your activities. If you can go back seventy-two hours prior to the fire, please do so and what I'm interested in are your general activities, such as the watches that you stood, if you stand watch, what your work load was like, when you were sleeping, meals, that sort of thing is what I'm interested in. The amount of detail that you need is up to you. Recall as much detail as you can. And I'll give you the choice. Would it be better for you to start at the fire and work back or would it be easier for you to work forward?

MR. LEE: No, I can work backward. I came on --

~~EXAMINER:~~EXAMINER JONES: Let's do it this way. When --

MR. LEE: Okay.

~~EXAMINER:~~EXAMINER JONES: When did you come on board the Columbia for this particular trip?

MR. LEE: Okay, I started -- my work week started Friday, Bellingham, on 6/2. I came aboard at noon, relieved the engineer, Roger Aiken ~~(ph)~~, who had been on for a week. We were just beginning to start our normal two and two schedul~~eary~~ where I work~~.~~ — t~~T~~wo weeks on, two weeks off. I work, basically, my hours are from 06 at night or 1800 at night to 06 in the morning~~.~~ I'm on what you call standby. As we leave the port and everything, anytime during that time, I'm called out for standby to come down while we go through the narrows or entering or leaving the port. During the day, the first assistant engineer has the duty, but I'm also -- anytime any problem comes up or anything needs, any question, that the first can't answer, then they'll call me. But before the time of the incident, I was -- we left Bellingham and, of course, I didn't have that standby because -- well, ~~I~~ it kind ~~can~~ of ran into it, ~~.~~ — I had thirty minutes of it before we got ~~to~~

go full ahead, and from that time on, most our standbys, until we got to Catchean Ketchikan (ph), we're all with the first assistant. So I had all that time to do my normal paperwork. I had a lot of -- uh -- pretty sizeable paper load to -- because we just come out of the yard -- I was starting to catch up on all my reports, start to enter all the data into the computers. We're in the process of changing over computers so I was in the process of setting up two computers. We had a new third so we had other people standing watches, with him looking at them and they had other duties going on. By the time we hit CatcheanKetchikan, that's the morning, well, I didn't have a standby for that, but from that time on, I have the standbys at night for Wrangell, Petersburg, which kept me up about 2:30 a.m. in the morning, the day before --

EXAMINER:EXAMINER JONES: The day before the fire?

MR. LEE: The day before the fire, because then I had, after we had left Wrangell, on our way to Juneau, that's when I was able to go to bed and go to sleep and we were going get into Juneau around seven o'clock so, normally, we had a lot of people that come down. I wanted to be up for that so I got up for that.

~~EXAMINER:~~EXAMINER JONES: Okay.

MR. LEE: And then after we left Juneau, that's when I went directly to bed because I don't have to be up during the day after the first. I kind of work my own hours.

~~EXAMINER:~~EXAMINER JONES: Okay, the day before the fire, when did you sleep and how much did you sleep?

MR. LEE: I had about eight hours sleep before the fire.

~~EXAMINER:~~EXAMINER JONES: Is that eight hours consecutive?

MR. LEE: Consecutive, yes, because I -- we just had my crew change, I just got my regular first on, my regular second and my third; so I had my, the crew that I actually work with for the two week period that I'm on~~.~~ ~~I'd~~ had just come on in Juneau.

~~EXAMINER:~~EXAMINER JONES: We may have already covered this, but do you work this six on, six off watch?

MR. LEE: No, I don't. I'm non-watch stander~~ard~~.

~~EXAMINER:~~EXAMINER JONES: Okay.

MR. LEE: My hours are, basically, my hours, whatever I make my hours.

~~EXAMINER:~~EXAMINER JONES: All right, you said you had eight hours the day before --

MR. LEE: Before the incident, yes.

~~EXAMINER:~~EXAMINER JONES: Okay, what about the day before that?

MR. LEE: I had maybe about six or seven straight hours of sleep.

~~EXAMINER:~~EXAMINER JONES: Okay, what is normal sleep for you, how many hours?

MR. LEE: I usually like to get at least six to seven hours to feel really rested.

~~EXAMINER:~~EXAMINER JONES: Okay, now, let's talk about the event itself. What can you tell me about the fire itself? Where were you when the fire started?

MR. LEE: I had gotten up -- I know, before I went to bed that night, that we were going to have -- they posted it on the board -- that we we're going to have a fire and boat drill at twelve thirty.

~~EXAMINER:~~EXAMINER JONES: Uh-huh.

MR. LEE: And that also we were going to be getting into Juneau so I knew I had plenty of time to get plenty of sleep and decided to get up around eleven thirty in the afternoon to go down to the mess to have lunch. I was down in the mess having lunch at the time

that the fire started. We were in there having lunch, we just finished lunch and we were just starting to talk about our fire and boat drill, when the lights started going out. They started flickering.

We all jumped out, immediately started out of the Officer's mess. We're on the same deck where the emergency generator is because I walked out the door, I heard the emergency generator start. So I knew the emergency generator is on. The first assistant~~tee~~ decided he went down to the emergency generator to make sure. I continued on down with my third, ~~near~~ and the other second, we continued on down the stairwell and make it to the main engine room to find out what was going on.

By the time I made it to the main engine room stairwell and started down into the engine room on the starboard side, I saw the third assistant engineer, Dan Rhodes, who was on watch, coming up through the auxiliary room and he had the fire hose in his hand and was stretching it out. He had already brought up some Co2 bottles. I immediately asked him, I said, "What's going on? What happened?" He said, "The control room's on fire." I said, "Okay, is anybody inside?" He said, "No, everybody's outside. The oilers were standing at the other end~~—in~~." I said, "Okay, how

many generators are still on-line?" He said, "There's only one generator still on-line." He had just come up from there. He had shut down number two, so number two was surging, rocking on its foundation, but he shut down number two.

And immediately, while I went in there to check to the scene, checked around the area to see that everything -- what the generators are doing, what the casualty looked like in there, number one I saw was still on-line and it looked like it was starting to shake a little bit too. I wanted to hear it to see if it sounded like it was overloading. It did sound like it was overloading. And that was -- I just stuck my head through the water-tight door. I came back out and said, okay, I needed to look in the ~~patrol~~ control room to figure out just how bad it is.

So I went up to the control room door, of course you couldn't see into it at all. So I went up there and I started feeling up at the top and the sides and the bottom to see if there was a possibility that I could open the door and look in. ~~On the side~~I decided~~,~~ everything seemed cool enough on the bulkhead and on the door, so I opened the door just a little bit and I couldn't see anything and the smoke was so bad, I just closed it immediately and then I ~~I~~ decided what the

next course of action.

By this time, my first had come up to him and I says, "Start lining up a fire pump." I could hear the main engine was dying down. I knew the pitch pump was ~~gone~~on. At that time, I was considering that the emergency generator was on, that it was probably functioning because the pitch pump had stayed on running. Now i~~I~~t's on the starboard engine, it's on the emergency circuit.

So t~~T~~he next thing was to line up a fire pump in case we needed water. My other concern was, I knew I didn't see anybody else at that time, right before that Stan Jones, who was standing behind me, told him, go sound the general alarm. Get up there, tell the captain we have a fire in the engine room so we can get some help down here.

And my next thought after that was, I had the centrifuges ~~er~~ -- down below, right by the door where I could see them, I could see that they were winding down and I started looking around for other people, and for the oilers. I didn't see anyone so I immediately went down, shut the fuel off to fuel ~~all~~ oil centrifuge~~er~~ -- because as they die down, they will keep drawing a suction ~~in~~, discharge once they lose their seal, they'll discharge fuel ~~just spill~~ out into the open

area there.

~~EXAMINER:~~EXAMINER JONES: Uh-huh.

MR. LEE: So I wanted to make sure that we didn't add to the fire. I thought in my mind, the fire's contained at that time, it's in the control room, the doors are shut, nobody's in there and I can take care of these other matters first. I made sure that the bridge knew, got more help down here, start securing the engines and start checking the space. I went down there and shut off the fuel centriqugee~~r~~ --, I shut off the day tank overflow valve, because otherwise that will come back in and it goes into the slop tank, which goes out in the engine room. Lube oil does the same thing. If you don't shut it down when it's dying down, the lube oil will leak out of there and keep drawing the suction from the main engine and put lube oil all in the main engine room.

I secured those and by the time I did that, I came back up from my first to my third, we're right back up there by the door with them again and they were suited up with OBA's. I told them, I says~~id~~, "Look, everything looks pretty good. The generator's still running, but it's starting to act funny. I need to get that generator off the line. I think it's still supplying the ---bus." And I said, "there's, ~~i~~if we

can get in there," since they were suited up, I said, ``~~I could~~ go on in there and "see if you can see the auto transfer switch. If it's still closed, open it, that ~~it~~ will kill the board and if you can check the generators and if it's not off the line, try to trip them off the line."

We opened the door just enough, and by this time took, the deck department emergency squad, the guy was suited up, he was there too.

~~EXAMINER:~~EXAMINER JONES: Uh-huh.

MR. LEE: So we all had Co2's standing by there. We opened up the door and we couldn't in there. So we closed it back up again. So we just said, let's get the big Co2 up here. Let's get everything up here. By that time, I went back up to let the deck department, got a radio to keep in touch with the bridge now, by radio, to let them know what the situation was, what was going on.

I saw over to my left that the Coast Guard had put on a fire team so I waved over to the Coast Guard team to come on down, we needed you~~r~~ to help ~~to~~ fight this fire. And t~~T~~hat's when we went back to the engine room, opened the door. I said, ``T~~t~~he Co2,'' ~~what~~ I said ~~is~~, "wWhat we have to do is to just start shooting in there," which we did. ``And then as soon

as we can and as soon as we can get some smoke cleared out, there's several vents at the bottom of the panel and on the sides of the panel for them to shoot the Co2 in there to try to extinguish the fire.'' And that's what we did for quite a bit of the time. We just stood there ~~and~~ shootin' through ~~for~~ the door. A few minutes before that, before I got, when I went to get the fire team, ~~and~~ got~~let~~ the fire team down there, I went back up myself and put on an OBA because you could not stand in that area ~~with~~ if you ~~the~~ opened~~ing~~ door. The smoke and everything came at you so bad that you couldn't stay in the area for very long at all. The heat still, at this time, had not started ~~filling~~ building up around the door yet.

~~EXAMINER:~~EXAMINER JONES: All right.

MR. LEE: After we did that, we had the fire teams in there, I had an OBA on, got back down there again, there was a ques[illegible], we started fighting the fire and, at that time, the engineers, my first and my third, were able to get in there and get over there to the generators~~'~~ side, flip the bus~~t~~ tie off and they told me that the generators were off the line.

I made the decision and went on down there to kill the number one generator to make sure it was off the line. I knew if was off the line. And the

auxiliary generator, and the uh, emergency generator was just supplying the emergency bus. At that time, I went down there, shut off the generator, came back up again and then we were just fighting fire from there on.

~~EXAMINER:~~EXAMINER JONES: Now, you had not scheduled any maintenance on that, the electrical system, or had you?

MR. LEE: No.

~~EXAMINER:~~EXAMINER JONES: Okay.

MR. LEE: ~~Nothing~~ The only thing we had done prior to that, no, no, we didn't -- well, we rebuilt number one generator in the yard, but, the electrical end was disturbed on number one generator and number two generator during the overhaul period.

~~EXAMINER:~~EXAMINER JONES: What I'm getting at is, is that the folks on watch, were not doing any kind of maintenance or repair?

MR. LEE: No.

~~EXAMINER:~~EXAMINER JONES: Or were they?

MR. LEE: No, at that time, the third on watch -- we had just left Juneau. We just got ~~pulled~~ full ahead in Juneau. So t~~T~~he engineer who had just relieved the watch, so he was out there making a complete round of the main engine room, and the

auxiliary engine room.

~~EXAMINER:~~EXAMINER JONES: Uh-huh.

MR. LEE: And I have the policy, if the engineer is not in the control booth, that either the oiler or the junior will be in the control booth, while he's out making his round.

~~EXAMINER:~~EXAMINER JONES: Okay, one other question for you, it's a little bit different from what you just explained and I'm sure the other folks are going to want to follow up on that, but back on the watch system, as Chief Engineer, are you responsible for scheduling the engineer watch in the control room?

MR. LEE: No, that's set up by, actually, by the Certificate. I mean, it's set up -- there's a chief engineer, my hours, ~~purser~~ first assistant engineer ~~there~~ is a day worker, second engineer is a day worker and I have a day third and I have a six to twelve watch and a twelve to six watch and that's set up.

~~EXAMINER:~~EXAMINER JONES: Okay, but do you determine who stands watch when?

MR. LEE: Well --

~~EXAMINER:~~EXAMINER JONES: Is that your job? Who determines who's going to stand watch next?

MR. LEE: Okay, it's determined by seniority.

I mean, okay, we -- I had permitted, Dan Rhodes just transferred over from the ~~Malice Ena~~Malaspina ~~(ph)~~, the other, he was junior to the engineer that he was coming on to work opposite so that dictated that he would be on the twelve to six watch.

~~EXAMINER:~~EXAMINER JONES: Okay, I understand.

MR. LEE: Right, and then like the a, Richard Webster had the six to twelve ~~o'clock~~ watch because he's a senior third.

~~EXAMINER:~~EXAMINER JONES: Uh-huh, okay.

MR. LEE: So we let the senior man pick the job or pick the watch. And like Dan Rhodes came in to the twelve to six watch ~~because~~ due to ~~of~~ the fact that he was ~~a~~ junior guy.

~~EXAMINER:~~EXAMINER JONES: Okay, okay. I don't have any other questions at this point. I'll turn it over to Nancy and Tom and I would also hope that Lynn and Eric from the Coast Guard get a chance to ask you questions.

EXAMINER TOM: Do you want to go first, Nancy?

MS. MACATEE: When you made entry into the space finally, where exactly was the fire located or could you tell?

MR. LEE: You couldn't really -- okay, the

first time that we entered the space, all you could see was black smoke. I never saw any flame. The only time I saw any flames whateere we would call flames, after it finally started to expose, what we were really concerned about the heat. It was so hot in there. The fire team still thought that we still had a fire going. I was trying to explain to them that they were in a steel box and that this was hot and it's just going to stay hot like this. We had flashlights going on and off, the emergency lighting was working in there and the fluorescent lighting was kind of dim light, but you could see -- we couldn't really tell, so we wanted to make sure that there was no flames. For So the first time that we saw any type of what you would call flame is, once we finally took the forward panel off, the outer panel, the metal panel, to get off to get to the breakers and to get access to behind the control room because it couldn't get in through the vents, by the time we took the first panel, if you unscrew the four screws to get the first panel down, partially, we could see there was flames behind there from the wires and that's when we brought the big -- we still had to see a good big Co2 in there. We just stuck it up in there and just hit it and let it go for quite awhile.

MS. MACATEE: Okay, could you describe those

flames for me, color, intensity, that kind of thing?

MR. LEE: They were kind of blue and they were really small ~~and~~ I mean it was contained it was -- on to the wire and on to the terminal that goes to the first of the breaker itself.

MS. MACATEE: How did shooting Co2 on those wires affect it?

MR. LEE: It killed -- the flame that we could see or that partially we could on the wires, took it right out.

MS. MACATEE: Have you ever seen a fire of this type before in your experience?

MR. LEE: Partially.

MS. MACATEE: Partially?

MR. LEE: Right.

MS. MACATEE: Okay, that's actually all I have right now.

EXAMINER TOM: I'm trying to get a better idea of the timeline and how much time passed before you did certain things. So, if you can kind of narrow that down a little bit. I understand the lights went out. They, initially, started flickering?

MR. LEE: Right, and I say that would be --

EXAMINER TOM: Is that typically for the lights to flicker before they --

MR. LEE: Yes.

EXAMINER TOM: -- go out?

MR. LEE: That, well, two things happen. The lights either go out or the ventilation goes out first. This happened about the same time. Well, no, the lights actually went first before the ventilation. That's our first indication that we have a problem and we know we have a problem right away. The lights went out and when you're in the Officers' mess, the ventilation you can hear because it's also right there on the same level. When fans started dying down and the light~~s~~ flicker~~ed~~ed~~ing~~, I knew we had a major problem and that's how it started out. And then, of course, like I said, when it started out, I could hear the emergency diesel because, you could hear it, because it's right there. It's about three doors down. I heard it start up and that's when I headed straight to the engine room. The lights flickered first, the ventilation went off.

EXAMINER TOM: Okay, the lights flickered and then they went out?

MR. LEE: Yes.

EXAMINER ~~LEE~~Tom: And these are lights off the main --

MR. LEE: The main bus.

EXAMINER TOM: Okay.

MR. LEE: Yes.

EXAMINER TOM: And then you went down to the doorway, to the control room, and did you see anybody there?

MR. LEE: Yes, I saw -- well, as I entered the space, I don't remember seeing anybody. I was focused on getting to the control room because I knew if we had any chance of establishing or re-establishing power or -- because I wasn't sure -- I knew that we had left Juneau and we were on our way to Sitka (ph), but it's a nine hour run before we get into the critical areas to where we're going to get to the narrows, but I know that the Captain had requested, when I had left, to run -- and the first had informed me -- to run a little higher speed than we normally run to make up some lost time because we were late leaving Juneau.

So I was concerned about the location where we were at, but my main focus was to get down into the control room to find out what the casualty was and see if we could get another generator on-line or see which generator failed. I knew, basically, two generators had to fail in order to put the lights fully out.

As I entered the space, I didn't see anybody at the engine room entrance. It wasn't until I got

down in there that I saw Dan Rhodes, actually, coming up through the auxiliary room with the fire hose and starting to lay out the fire house and -- not going to put water on it, ~~it's~~ this is probably an electrical fire. But that would have been about, maybe ten, not even, five, less than five minutes because I took the shortest route I could to get down to the engine room.

Because we~~I you~~ had a similar experience about five years ago to where we were all sitting around up in the chief engineer's room when all the lights went out, the ventilation went out and, boom, straight down to the engine room.

EXAMINER TOM: And then after that, is that when you went down and secured the lube oil purifiers?

MR. LEE: No, after I -- the first thing I did after I saw Rhodes laying out the fire hose, looked around and saw that he had brought up some Co2 bottles and set them around -- I saw that we had Co2 and I started to fill the door at the beginning -- my first question then was, is there anybody in there, because I saw Rhodes was there and I was concerned about -- I knew that I had an oiler and a junior. I asked him, "Is there anybody in there." That was my main concern and he said, "No." I said, "Okay, great."

My next concern was what is the damage, what happened. He said, "The control room's on fire." And then I asked him, "Well, how many generators or what do we have on-line." Just come up and secured number two and he told me the reason why. And I said, "Okay." And that's when I just d~~b~~ucked my head in there to see and I saw two and three were dead, one was on the line, saw what it was doing. And that's when -- then I looked around the room to see who else was down here. I went and said, "Okay."

Before that, I had already, you know, basically opened the door, saw that there was no way we're going in there dressed the way we were and I assumed both doors were shut, the escape hatch~~es~~ was~~ere~~ shut so I figured it was contained. That's when I went down and said, "Uh-oh, I better get the fuel off," because I could see -- I looked around, I didn't see anybody else because I wanted to go up to one of them ~~find my second~~ and say, "Go ahead, go down there and secure this, this and this," because I knew my first was already going around, lining up the fire pump, lining up the emergency supply, saltwater supply, to the starboard engine because we were thinking about next seeing about our location -- we know we're going to get this engine going so let's start getting this

engine going.

~~Rhodes~~So I know ~~,~~ he was down there doing that and in the meantime, I went and did that and that's when I went back up to the hatch and was getting a radio and I think I saw the chief mate there at this time and then the chief purser was there and ya know, ~~I~~ -- because right before that, I had already sent Stan Jones, who, he was down there when we first entered, he was right behind me on my heels and that's when we ~~saw~~told him, after I saw Rhodes, and we said that, "Go trip the general alarm, notify the bridge, tell them we have a fire and we need help down here."

And then after that, then I went down there and did all this and I lost track of time. It was just secure this, don't create, add to the fire, secure things that might add to it, contain it.

EXAMINER TOM: So its really hard to really estimate at what point you started to

MR. LEE: I didn't stop to look at what we're doing next, or, I was focused on containing the fire, safety of the people, and not adding to it.

EXAMINER TOM: Okay, now, the first people to

make entry into the space was, who was that, was that the first and the third?

Mr. Lee: No, we had the, I cant think, it was an AB from the deck department that suited up, it ~~(Side 2 of Tape) deck department. See, there's a~~ it was a new guy that had started, just transferred over to the vessel also. When we sent Stan Jones up to the car deck, to call the bridge, to trip the fire alarm and then tell them we had fire in the engine room. He suited up and by the time I got back down to the engine room and Stan was right there still with me and the first had already gone off starting doing all his stuff.

When we got back down there, he was there standing with me, at the door, suited up. Now, that was about the second time we had gone back down there, felt the bulk heads to see if we could open up the door, knew he was there, and at about this time, that's when Stan had come back and the first had come back and they already had the OBA's on and the AB was there and he was totally suited up and that was the next time that we tried to enter the space, at that time.

So, if we from the time of the fire alarm to the time that he actually got down there and got suited

up and was actually down there by the door because he was completely suited up in his gear, fire gear, OBA, the whole works.

EXAMINER TOM: You couldn't estimate the amount of time that passed or what time it was when --

MR. LEE: No.

EXAMINER TOM: You mentioned that the number one and two generators were worked on in the yard --

MR. LEE: Yes.

EXAMINER TOM: -- the electrical ends, can you described what was done?

MR. LEE: Well, number one was not worked on electrically. What happened was we were going to the yard, we were going to have number one overhauled, we were doing the diesel— end of it, my crew was. I had two third engineers and an oiler working on the overhaul of number one. We had, in the project, in the state overhaul, ~~which~~ was to do generators number two and three in, to have them pulled out, set ashore, checked, if they needed rewinding, new bearings, whatever, to have them done.

When the yard — first came over, directed them, showed them what the job was, what they needed to do, what they had to accomplish. After I left, my two guys started working on number one generator, working

on it. The next day I get a call from my first, they're tearing apart number one generator. So I go back down there and tell them, no, number one is fine. They already had the leads apart, were starting to work on it.

We started at seven in the morning, the yard started earlier. So they already started work on number one, but I told them, no, don't do number one; two and three come out. So then they put number one back together and they started working on two and three, which they took out and sent out and had them overhauled.

Then they brought them back in and put two and three back in, connected up and one was already done. The engine was still apart.

EXAMINER TOM: So they took out what, the generator?

MR. LEE: The entire generator end, the generator itself, from the diesel, was disconnected, electrically and mechanically to the diesel end. That was totally yarded out and so was number three.

EXAMINER TOM: And what do they do on generators?

MR. LEE: Generators were checked out, the insulation, everything was found to be in good working

order and in one main generator bearing, we changed out the bearing; caterpillar had made a modification, but these two ends had already been modified so we didn't have to do that and they were going to go to a new type of bearing. So that was done and they were brought back and installed.

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EXAMINER TOM: Now, after the work was completed and you tested the generators and engines, what sort of testing did you do and what were the results?

MR. LEE: I wasn't there for this. I had done my six weeks so the other engineer, they had a vacation relief engineer come in and relieve me at that time.

EXAMINER TOM: And what was his name?

MR. LEE: I think it was John Marco (ph). And they had two people that time. They had John Marco, Tony Baxter. And at one point in time, we moved up, pulled in Scott, who's my first assistant ~~to~~ filled in for a week as chief engineer also.

EXAMINER TOM: Okay, the ship~~ft~~ recently went through a COI inspection?

MR. LEE: Yes.

EXAMINER TOM: When was that and were you on

board?—

MR. LEE: We started in -- yeah, I was here for that. I was here for the last three weeks of the yard or actually from April 1 till we sailed in May. And we went through the Coast Guard inspections and the ABS, COI.

EXAMINER TOM: And when was that done?

MR. LEE: That was all done -- we started, we had everything set up for May 8th. We actually started May 8th, through there, through the different phases. The Coast Guard was ——busy with the Kennicott and a few other vessels, ——so over from May 8th we started, May 22nd we actually start and also actually finished up on May the 22nd because we sailed on May the 24th. Mark Peterson ~~(ph)~~ was Coast Guard Inspector at the time. Chuck Shull was the ABS Inspector, had come the day before.

EXAMINER TOM: Chuck Shull?

MR. LEE: Shull, yes. S-H-U-L-L.

EXAMINER TOM: Okay, and what sort of the testing did you do, as part of the COI, on the generators and switchboards?

MR. LEE: We tested all three generators, we tested all three reverse current relays, we tested the low lube oil shutdowns, we tested the overspeeds for

all three generators. We tested the main engines, overspeed, and shutdowns. Let's see, we did the fire pumps, we did the bilge pumps, we tested the sprinkler water system, we did the vent shutdowns and a lot of the other stuff we had done prior to that.

EXAMINER TOM: And were there any discrepancies written on the generators or switchboards, your reverse power of relays or shutdowns?

MR. LEE: Nothing, nothing at all.

EXAMINER TOM: Did you have any problems during the test?

MR. LEE: No, no problems during the test. Everything worked, functioned properly.

EXAMINER TOM: Had the reverse power ~~of~~ relays been calibrated or tested prior to the COI--

MR. LEE: Prior to this, one had been replaced. Due to, ~~w~~When they rewired up number two, three generators -- this is the part when I was gone -- and they rewired up number two and three generators and went to test the~~m~~y out, they were wired up wrong to where they destroyed number two ~~with those~~ reverse current relay or power relay. So it was replaced.

There was ~~are~~ two other control relays in the circuit that were also wired up wrong and were -- the

main fuse for number two in the exciter circuit failed at the time too. Due to the— wrong wiring. The generators, at first, would not go on-line, they would not parallel with each other and they went through extensive testing to straighten everything out, to get them to where they were capable of starting and stopping, going on-line, paralleling with each other and everything working.

And they were thoroughly tested again with reverse current relays and the power and everything. Because before, ~~the report~~ after that, ~~a couple~~several months after that, it was until we had our ~~C~~ sea trials and everything was tested again. And then, generally, what we do too is when we know we have the Coast Guard coming, we also check them the day before too, to make sure everything is working, everything goes smooth.

EXAMINER TOM: Okay, could you describe the work that was done in the main switchboard during the overhaul? I understand they changed ~~the~~ a breaker.

MR. LEE: Oh, yeah. They changed out a 200 amp breaker because they added two rescue, fast rescue boats, ~~and~~ ~~a~~uh, davit— so they needed the extra power. So they came in off of panel number two and put in a 400 amp breaker, changed out a 200 amp breaker and added to the existing line, another line, to go all the

way from the main switchboard all the way up to P2, which is located in the emergency generator room. I was here for some of that.

EXAMINER TOM: So the new breaker was to add the ~~passing~~ capacity for the rescue boat ~~—~~?davits?

MR. LEE: Yes.

EXAMINER TOM: Was there any other circuits added to P2, beyond those?

MR. LEE: No, there was just those three circuits added to P2 and there was already three on the existing circuit.

EXAMINER TOM: Okay, and that work was done approximately when, the, putting the breaker in and running new wire?

MR. LEE: That had to be done in March because they were doing it when there was just -- that was part of the Federal project when they were doing that. ~~S~~so that was under ~~many~~ the inspectors ~~&~~ ~~and~~ their observation and control.

EXAMINER TOM: Okay, do you know if there ~~is~~ was any problems associated with that particular installation?

MR. LEE: There was. While they were pulling ~~tting~~ the wire in, they grounded ~~drowned~~ out the outer sheathing~~eting~~ on the cable, which shorted out another

cable, I assume, by it, which caused the worker to be shocked, completely shocked, and caused us to have to splice that cable ~~under~~ and repair when it was being ~~fullproofed~~ pulled through as they were putting it in.

EXAMINER TOM: So, as they were installing the new cable, they damaged an adjacent cable that was energized?

MR. LEE: I'm not quite sure -- I know that they were pulling -- okay, it was, I think, already in the box. I think what was happening was they already put it into the box, was pulling it from the box, instead of pulling it to the box, they were pulling it from the box, and when they were going through the wire ~~rung~~ there, they way it was explained to me, that they grounded out, shorted, ~~it~~ and the guy that was pulling it was hit, sent to the hospital because he got --

EXAMINER TOM: They weren't pulling a live cable, were they? Okay who had ..

MR. LEE: The way it was explained to me, the were pulling a live cable, which I said, you know, that couldn't be possible. Why would they be pulling a live cable, a new cable that's live?

EXAMINER TOM: Who had more information about that? Who told you about this incident?

MR. LEE: That was my first assistant

engineer.

EXAMINER TOM: Okay.

MR. LEE: And then the other, Roger Aiken, who was the inspector at the time. He's my ~~officer~~opposite, the other chief engineer, was acting as inspector for the project. And t~~T~~hat was the week that he had moved Glen Scott up to relieve, ~~-~~a relief for me.

EXAMINER TOM: And that's the only problems you know associated with that installation. After the installation was done, it was tested presumably?

MR. LEE: Yes.

EXAMINER TOM: And there was no problems?

MR. LEE: No, not with that operation until we actually got underway with that power panel. Once we got underway, again, I got relieved in Bellingham, ~~.~~ m~~M~~y ~~officer~~ opposite came on, which was Roger Aiken. They had problems with the power panel, ~~.~~ h~~H~~e had the first week on the run. The galley that supplies .. i~~I~~t also supplies the galley heaters and vents controls ~~both~~ up there, and they were ~~.~~ popping.

So they found, when they got down to Bellingham, we were able to take the power off that power panel and went in there and he found the connections loose and he tightened everything back up,

which seemed to have solved the problem because then I came on that Friday and relieved him and ~~he~~ we left and everything just seemed to be okay.

EXAMINER TOM: And how long have you been aboard the vessel, this particular ship, the Columbia?

MR. LEE: Two different times. I was first assistant engineer out here from '89 to '95 and then chief engineer on here, on and off, as a vacation relief chief, for the last four years and I spent a lot of time on here. And I've been chief engineer, actually, on this vessel now for about a year and-a-half.

EXAMINER TOM: Okay, and during your time aboard the Columbia, have you had any switchboard problems, any switchboard problems or connected distribution power panels?

MR. LEE: No, I have not.

EXAMINER TOM: Have you done any repair work on the switchboards?

MR. LEE: None.

EXAMINER TOM: Any maintenance work on the switchboard, on the main switchboard, before now--?

MR. LEE: None.

EXAMINER TOM: I understand you have some kind of a thermographic survey --program?

MR. LEE: Right.

EXAMINER TOM: Could you describe that program for me?

MR. LEE: That's where we have an outside contractor come in, he's contracted once a year, comes in, I send at least three of my guys with him to go around to all the different panels, open up all of them-- take off the front of the panels, so that he can get in there with his infrared camera and take pictures of all the electrical circuits, circuit breakers and determine what condition everything is in. He thoroughly goes through everything and then he gives us the detailed report after he's done. Aand then he'll give us basically a work list of what he thinks needs to be addressed and he'll prioritize it as far as immediate, ~~to~~ can get to, and when you get to it.

EXAMINER TOM: Okay, and when was the last time that survey was done?

MR. LEE: It was done in October of '99.

EXAMINER TOM: And how many, if you recall, about how many discrepancies did they find in that survey and have they been corrected?

MR. LEE: They've all been corrected. I would say, offhand, maybe twenty.

EXAMINER TOM: Okay, and as part of that

survey, do they do the main switchboard?

MR. LEE: No, they typically, don't do the main switchboard, due to the fact that, when they do their survey, we're usually underway and it's too hard to try to do any -- we open up the panels down there that are on hinges and that he can get to and can look at, but that's mainly just the gauges and stuff, it's not the main switchboard itself, we have not, because, the first thing you would have to do, in order to be able to get to those panels, on the breakers, there's a fuse panel. There's a cover. You have to unscrew, take that cover off, in order to be able to unscrew and take off the metal plate, get behind it and actually get to what he needs to ~~a~~is the lugs and the leads coming in to take a picture of.

EXAMINER TOM: Okay, to your knowledge, have they ever done a thermographic survey of the interior to the main switchboards?

MR. LEE: I couldn't say for sure.

EXAMINER TOM: To your knowledge?

MR. LEE: They might have in the past, because I know they're a chief engineer that was on here for about fifteen years, Pete Everly (ph), was pretty thorough and they might have done one, but.

EXAMINER TOM: But you couldn't say that it

was done or when it was done?

MR. LEE: No, I really couldn't say.

EXAMINER TOM: And when was the last time, to your knowledge, has anybody gone into the main switchboard and they either inspected it or tightened up the connections or anything like that?

MR. LEE: I really couldn't say. I don't know when the last time something like was, — the only time that it might have done is when we took out number one AC plant. It might have been done then. It might have been checked then.

EXAMINER TOM: So it's not a routine thing for you to --

MR. LEE: No, it's not a routine thing.

EXAMINER TOM: -- a work item for either ships force—

MR. LEE: No.

EXAMINER TOM: -- or outside ~~of~~ assist to .. --

MR. LEE: Well, it is, it is basically, I mean, I have it as something that I would like to do, if time permits. If I can, you know, have the people in a time~~ly~~ and the effort to do it. It is on my basic, overall list to do, but it never hap-- and the best time to do it, of course, is when go ~~i~~into lay up,

but when we go into lay up, we're down to either one person or no people.

EXAMINER TOM: In your experience with other vessels in the fleet, is that something that's handled in a similar way that you handle it on here, as far as going into the switchboards?

MR. LEE: Yes.

EXAMINER TOM: It's kind of, if you can get to it?

MR. LEE: If we can get to it, if we have the time and people and we have a situation where we have nobody on board -- and we can~~to~~ kill the entire plant to do it, yes.

EXAMINER TOM: Have you ever discussed maybe the possibility of having some industrial people come out during the lay up period, maybe do like a work order to the --port engineer for work that you need to be ~~done~~doing?

MR. LEE: Yes, we have done that in the past and still do it.

EXAMINER TOM: Okay.

MR. LEE: But if, I give them my work list and I said, "These are the items I need to have done. If we do them that's fine. If we don't do them, then they need to be contracted, they need to be done."

Yes, a whole list of SMR's that way.

EXAMINER TOM: SMR is?

MR. LEE: Ship maintenance request.

EXAMINER TOM: Okay, I think that's about all I have for right now. I may want to do another go-around. Nancy, do you have any survival stuff--

MS. MACATEE: Yeah, I've got some survival stuff to ask you. What training have you received for emergency procedures on board this vessel?

MR. LEE: I've gone through the standard training that everybody else goes through on board this vessel. I've also gone through the Military Sealift Command Fire Fighting School. I've done that three times, back there in Eastern Maryland.

MS. MACATEE: The standard training all crew receive, what does that entail?

MR. LEE: You know, general, you know, the station ——bill~~I mean~~, knowing your items on station —— ~~,~~—bill what you have to do, where~~n~~ you have to report, fire fighting equipment, knowing where it is, all the water-tight doors, the fire screen doors, general alarms, fuel shutdowns, air shutdowns, basic run through the engine room, where all the portable fire extinguishers, ——fixed systems are, where they are, where you can pull them from, basically.

MS. MACATEE: And you're a member of a fire fighting team?

MR. LEE: No, I am not.

MS. MACATEE: But you are a trained fire fighter?

MR. LEE: I have gone through, each time I go back or upgrade a license, I would go through the fire fighting school back there at ~~--~~ Calhoun Engineering School, which usually into the Sealift Command School there in New Jersey and we go through the course through there.

MS. MACATEE: With respect to the engine room and the control room, where are the exits/escape routes out of that room?

MR. LEE: Right there in the main control room, at the end on port side, is one escape hatch out of the control room. You can go down into the shaft ~~g~~alley, you got two escapes on both sides. You go forward into the auxiliary room there's an escape hatch in there. There's two water-tight doors you go through to get out, get to the main stairwell. That's it for basically the engine ~~or~~ and auxiliary engine room.

MS. MACATEE: Have you ever needed to go out of one of those escape hatches for any reason?

MR. LEE: I have not.

MS. MACATEE: In that space, are there any smoke hoods?

MR. LEE: There are smoke hoods in every space.

MS. MACATEE: Okay.

MR. LEE: There's two in the control room, throughout the engine room, throughout the auxiliary engine room, through the MSD room, ~~.~~ t~~T~~they're all over. We had just gone through ~~—~~ we were just getting ready for our internal audit, and that was one of the items that we just gone~~t~~ through and checked.

MS. MACATEE: What about self-contained breathing apparatus, where are they located?

MR. LEE: They're up on the main deck of the car deck ~~out~~ aft of ~~to~~ the engine room. As soon as you come out of the engine room, main engine room door on the starboard side, there's a double-door locker with all the emergency gear right there.

MS. MACATEE: And that includes also fire fighting gear and --

MR. LEE: OBA.

MS. MACATEE: -- OBA, okay. What was the make-up of the fire team on the day of the incident?

MR. LEE: It was myself, basically, the third assistant engineer, day third~~Dave~~, Stan Jones; first

engineer, Glen Scott; I can't remember the new guy's name, the AB, was there and then, of course, we had the Coast Guard fire team.

MS. MACATEE: Okay. And they were all suited up in self-contained breathing apparatus and --

MR. LEE: Right, right.

MS. MACATEE: And is that a typical fire team? I mean, for an ~~internal~~ engine room fire, per say, ~~of~~ are those the individuals that would respond or does it just depend?

MR. LEE: No, I mean, due to the situation on here, with having a day first, day second, day third, they would always, like myself, be able to respond to an ~~internal~~ engine fire and engine room casualty~~ies~~. And we would always be there each time, yes.

MS. MACATEE: What other safety equipment is located in that space?

MR. LEE: As far as -- there was~~ere~~ life preservers in there, there was a CO~~e~~2 bottle inside the control room, and that's about it.

MS. MACATEE: Where di~~d~~e they stage to put on their equipment and you know, --

MR. LEE: That was up there on the starboard side, right out the engine room door, right there at the hatch and right there at the double-door locker

where the emergency gear was.

MS. MACATEE: Okay, and then I just have one question on the fire engineering side. Beyond the tightening up of those connections, was there any other electrical squawks or problems that have occurred since you've come out of the shipyard?

MR. LEE: No, just the normal problems, starting up systems and --

MS. MACATEE: Okay, no ~~bright~~ lights flickering or ventilation cut-outs that would start back on or, you know, by themselves~~run~~ --

MR. LEE: No, no, nothing like that.

MS. MACATEE: That's all I have.

EXAMINER Jones: Any more questions?

MS. MOLINE: Uh-huh. I'm Captain Lynn Moline. I'm the Port Captain for Alaska Marine Highway. I have one question. We recently completed BST training. Did you do any of that?

MR. LEE: No, I did not.

MS. MOLINE: Okay, thank you.

EXAMINER TOM: And what is BST training?

MS. MOLINE: Oh, it's basic safety training. It's replacing the ~~--~~ Lifeboatman ~~now~~ for the STCW --

MR. LEE: Because I already have a life boat endorsement, that's part of it.

EXAMINER Jones: Identify yourself.

MR. BOWER: Lieutenant Eric Bower, Investigating Officer for the Coast Guard Marine Safety Office. You said you were getting ready to have a fire drill at twelve thirty?

MR. LEE: Yes.

MR. BOWER: Was any equipment, such as rescue boats or anything like that, being energized or brought on-line, pre-positioned, for the fire drill?

MR. LEE: Not at that time. All that would've started during basic fire drill. The only thing that might have been started, but I don't think, would, uh, lining up the fire pump, making sure the fire pump was ready to go. Because a~~A~~s soon as we hear the general alarm bell, the fire pump had started, immediately.

MR. BOWER: Okay, thanks. All I have.

EXAMINER TOM: A couple more questions if we could. The fire extinguishing system, do you have a fixed system for that space?

MR. LEE: For the main control room?

EXAMINER TOM: The control room.

MR. LEE: No, we don't.

EXAMINER TOM: Okay, what about fire detection? Do you have fire detectors~~ion~~ in that

space?

MR. LEE: No, because the space is always fully manned. There's somebody always in there at one given time of the day.

EXAMINER TOM: So the bridge -- the only way they knew there was a fire is by a verbal report from somebody, is that correct?

MR. LEE: Correct, because at times -- all the phones to the engine room were inside of the control room, which you couldn't get to. That's why we had, I had to send Stan Jones outside the engine room, the nearest one would be up there forward on the starboard car deck to do the sound powered phone, -- and to notify the bridge, verbally.

EXAMINER TOM: Now, around the time of the incident, the fire incident, the third engineer on watch noticed the engine was shaking or rocking on its foundation?

MR. LEE: Right.

EXAMINER TOM: And were the lights still on at that time? I guess, it's kind of -- I really should be asking him.

MR. LEE: Well, yeah, because, I mean, because he had that, I mean, -- number two was off when I came down because that was the first thing that I --

EXAMINER TOM: Because he secured number two?

MR. LEE: He secured number two generator. And, at that time, when I came down to the engine room hatch, we were just on emergency lighting. I could see that. And the only thing, aAnd the port engine was already stopped by then. The starboard engine was actually still running, but it was dying, I could hear it was dying down, and that's, I mean, at the same time, I knew that the emergency was on it's supply because the starboard pitch pump, they have a real high wined. They were still on and running on the starboard engine. Sso I knew that the transfer bunchpumps had transferred over, because otherwise, if we had lost that, and that hadn't worked, those pumps would have died just like it we did on the port main engine, That means everything would have been off. The thing we had to set up first or, that did not start automatically and it's not designedfined that way, ist is the emergency air compressor. You had to go down there and actually turn it on, but it is on the emergency circuit.

EXAMINER TOM: Okay, you call that the emergency air compressor?

MR. LEE: The emergency air compressor.

EXAMINER TOM: Is that the one that's --

MR. LEE: It's the one that's wired up in the control panel or ~~on~~ the outside for the emergency.

EXAMINER TOM: And is that only run for emergencies or is it --

MR. LEE: No, it's set, —— there's three of them down there. We have two that run. The third one, the emergency one, actually doesn't normally come on unless there, unless one, something happened to one and two, then it would come on. It's that they're set up on air switches. It's that one and two are the two main air compressors and if something happens to them, then the third one would~~ill~~ come on and take over.

EXAMINER TOM: Now, did you say it has to be started manually or does it come on auto--

MR. LEE: It had to be started because when we came — down there, we had to just punch it on. That's normally what we do. It doesn't have ——-low voltage release in other words when the power is established it will come, automatically come on. We had to just go over to the — control panel, ~~you can~~ to turn it on, but that's normal as far as what we do with it.

EXAMINER TOM: Now, the worke~~r~~ that was done in ~~s don't have a~~ the main switchboard, the ~~to~~ adding the ~~a~~ breaker and running the cable~~s~~. Do you know if

there was an approved, Coast Guard approved drawing for that modification?

MR. LEE: I don't know if there was.

EXAMINER TOM: Do you have, per chance the approval letter for that modification? Or would

MR. LEE: No, I don't. I'm still waiting -- there's -- that was one of the problems is that there is a lot of stuff that is contracted through their yard and that was all part of the Federal project so you'd have to check with one of the Federal Inspectors and they would probably have all the documentation for that. I was waiting for, I mean, waiting for all the documentation for everything that was done on the Federal project and that was part of it.

EXAMINER TOM: I think that's about all I have.

MR. BOWERJones: I have just a couple of questions. That number two generator, how is it or is it bolted to the deck? How is it

MR. LEE: No, they're isolated because the ship moves and everything else and the generator has to be able to move, --rock and maintain a certain, what they call isolators. Theryesire big springs it sits on. There's a main foundation and isolators and there's another foundation that the generator's

actually bolted to. Through that, ~~they're~~ through isolators, they're bolted to big springs. They're bolted to the deck or to the ship itself so that the generators will normally rock every now and then. And i~~f~~f were in heavy seas, or something like that, yes, the generators, all three of them, will rock, but they're built that way.

MR. ~~BOWER~~Jones: Okay, thank you.

MR. LEE: But to see them shaking.

EXAMINER TOM: Have you ever seen that sort of a situation where it was shaking excessively as they~~x~~?

MR. LEE: I have seen that, yes, once before where the generator was being motorized. When the ~~worst~~ reverse current really did not, you know, do it where, —— as soon as you sense a reversal of current, ~~—~~trip it electrically off the line to prevent it from being fed as a motor, ~~and print it and it being as an order.~~ I have seen that before.

EXAMINER TOM: How about under an extreme high-loadw condition, would you have seen that sort of a response from the engine?

MR. LEE: No, I was on here as first engineer when they— did the original installation under one, two and three and at that time, we brought in what

youwe call is a loadw bank, a resistor bank, we loaded those generators totally up, ~~from~~ put `em under 900 plus KPW, and they were steady as a rock.

EXAMINER TOM: Do you have any idea what may have caused that rocking that the third engineer described?

MR. LEE: I had thought because, normal operation is shut down~~,~~ a generator you just go ahead ~~usually goes on~~ and take it electrically off the board to prevent something like that from occurring. Me, when I saw -- or what he describes to me is number one trying to run number two as a motor because it will create that kind of violent rocking.

That's why I was interested when I went into the control room to find out, for number two, if the reverse current relay ~~p~~had tripped to prevent that very situation, and it does not look liked it tripped to me. The c~~C~~ircuit breaker is tripped off the board so I know that, at one point in time, and I would assume, either with lots of voltage that a circuit breaker will trip or overload, the circuit breaker~~s~~ will trip on its own. I assume, you know, it tripped due to one of those causes, which took it off the board, because ~~it's~~ the same thing, I would assume, happened to number one, because I looked at the reverse current relay in number

one and it was -- but I didn't expect it, to see it trip because it was still on the line. I expected to see number two since number two was shut down at the generator level instead of at the control room because you couldn't get into the control room to do it. The third was on his way to do that and knew to do that, to take if off electrically from the board, but could not enter~~in~~ the control room due to the fact that it was on fire. So he did the next best thing was to stop it at the source, down at the engine room.

EXAMINER TOM: I just have one more question. The synchronizing system and voltage control system, have you had any problem with that in the recent past?

MR. LEE: We did have, I mean, well this, this is, of course this is ~~--~~going back six years on the original installation we had a lot of problems until we got everything on the new insulation ironed out. ~~here in --~~.

EXAMINER TOM: Uh-huh.

MR. LEE: After that, we did have, I guess, a couple of years ago, one of the SP~~P~~MA synchronizers went out, and it was replaced.

EXAMINER TOM: But, no unusual operation with those systems --

MR. LEE: No, no.

EXAMINER TOM: -- load sharing, cross currents, ---

MR. LEE: No the load sharing modules have worked flawlessly on these since the day they installed them. We just had that one problem with one of the SPMA synchronizer, the relay switch, it gives the closers a signal to put the circuit breaker on was not a large enough size and that was corrected by installing a new one.

MS. MACATEE: I have one more question. You mentioned that when first made entry into the space that the visibility was none. What steps did you take to improve the visibility in the room?

MR. LEE: Well, the first thing we did was, we all backed out, of course, got OBAs on ~~over the~~. Next thing was we opened the door to go in to examine the area and that's when we started shooting the Co2 into the vents, because you couldn't, for the longest time, you couldn't see more than, say, a foot off the deck at the most. Even with our strong flashlights and everything in there. So when we thought, after shooting the big Co2 in there when we started into the vents, we determined that maybe the fire is out and we ~~each~~ needed to ~~start~~ ventilating this so we could see that it is out and that we're not adding more smoke or

that the smoke is not still ~~not~~ continuing and find out and then we decided, okay, let's try opening the escape hatch. So I went up to the car deck, got a hold of two of my thirds that were standing up there, Mr. Webster, had him go over there ~~and~~with another guy, we first had ~~him~~'em -- there's a fire screen door before the hatch. We checked out the hatch before the fire screen door to see if we could open that door to begin with and then we opened the door and then we went to the hatch and we decided, after feeling it, that everything was still cool on that end, opened the hatch to see if we could ventilate. A little bit prior to that though, we had them open the main car deck door, because I said, "If we open this all up, we got the car deck doors closed, we're just going to flood this whole area with smoke." I said ``We need to have a way to vent this out here." We have ~~had~~ to have the car deck open, which was opened at the time. So we opened the car deck door and that's when we went over there and then we started opening up this and ran back down the engine room to see what affect that they had on the control room to see if that added to it, made it flare up or whatever or not or if it was just to see if the smoke was going to be more intense or less and we saw that it had made an affect to where we weren't making any new

smoke by adding, introducing, you know, more oxygen into the area so we decided we would leave it open and start letting this thing ventilate and cool down.

MS. MACATEE: So you never used the ship's ventilation system at any time for smoke removal?

MR. LEE: No, there was no possibility of that.

MS. MACATEE: All right. That's all I have.

EXAMINER: One more. Since you probably know the engine room better than anybody else, what would you have hypothesized as to the cause?

MR. LEE: I think something happened inside the main switchboard, something from the installation ~~ulation~~ of the new wire that was put in because the way the wire had to be brought in and past all of those breakers and then be connected in to the main, new breaker that they put in. I think something got disturbed or something happened in there. It was a very tight situation.

You got to consider on there, you had all the breakers, right now, all the breakers are out and you can get to the area. All the breakers that were up and fastened in there at the time, they only had two areas of entry; one small area to go in there on the port side, another small area to go in on the starboard

side. To squeeze somebody in there to take that heavy cable that is not very flexible at all, to bring it down in there through a tight, confined area and try to run it back down in here and then turn it down this way and then turn it back up to go into its connectors. ~~this~~——I think, either they did something like they did when they had the problem up here in the stack, that cable came in contact with something else, the — shielding maybe and maybe he started it from there because if you look at the wires, they way they're all destroyed and by the time that overloaded, those circuits and those wires got to the breakers, the breakers fell a part, they fell on the main bus, shorted it out. I think, that's what attributed to the generator's rocking on number two, either it was a massive overload at that point by the time this happened in there behind the panel because it looks like the way everything fell down on there. When the breakers came apart, there was a huge load because you can see there, the steel box behind the breaker panels, are totally eaten away when something happened.

I think, something, when they brought that cable, the way they had the three guys in there working, disturbing the bus bars, or they didn't check something or they hit a bus bar and you get in there,

you need to properly tighten the new breakers and everything, you're going to have to be in there trying to brace yourself, pull on something. You're going to be disturbing the whole area back there. Who know's what happened. I mean, I ~~wouldn't~~ wasn't there~~dare~~, but my first assistant was there watching part of the operation, of what they were doing behind the board. ~~I~~ B~~b~~ut I think something happened behind there. ~~It~~They disturbed something or.

EXAMINER Jones: Thank you, Chief Lee. End of interview with Alan Lee

(Whereupon, the interview was concluded.)